

RESEARCH PROJECT

 Institute
Life Technologies

Hes·SO  VALAIS
WALLIS
School of
Engineering 

SupraDiag : Smart supramolecular biosensors

Partners College of Engineering and Architecture of Fribourg (EIA-FR), School of Business and Engineering Vaud (HEIG-Vaud)

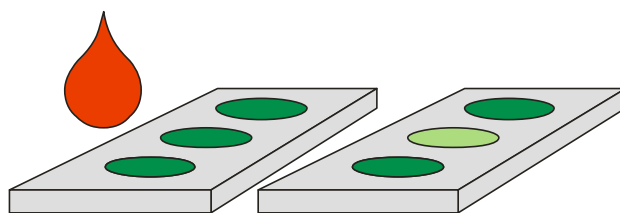
Collaborators E. Conдеми, S. Wegmueller, V. Gaillard, M. Pfeifer, M. Mathieu, J.-M. Segura

Description Point-of-care (POC) in-vitro diagnostic assays are very appealing due to their low cost, short response time and simplicity of use with minimal sample manipulation. However, POC assays are currently limited to single-point measurements in a qualitative fashion. In many instances such as the diagnosis of infectious diseases, the care of elderly persons, the analysis of drug of abuses, the monitoring of drug treatments, and healthcare in developing countries, rapid, on-site quantitative testing would represent a paradigm change in health care: the quality of the diagnostics would be improved while being less demanding on the patient and more affordable.

Our project aims at exploring a novel POC approach that could open unmet opportunities of continuously and quantitatively monitoring biomarkers or small molecules in blood. Our design relies on the assembly of standard assay components as supramolecular structures tethered to a surface. These smart supramolecular biosensors will react quantitatively to the deposition of a single drop of blood. This approach will enable multiplexed detection with improved diagnostics and will open the way for continuously monitoring biomarkers or small molecules in blood.



Supramolecular biosensors inserted into a vein using a catheter will allow continuous monitoring of therapeutic drug concentrations in blood



Multiplexed detection using an array of supramolecular biosensors: Addition of a drop of blood results in the quantitative quenching of the biosensors specific for the biomarkers present.

URL <http://itv.hevs.ch/>

Contact Prof. Dr. Jean-Manuel Segura
jmanuel.segura@hevs.ch
P +41 27 606 86 68